FAA AVIATION NEWS

JULY 1974

COVER:
The Rogallo Wing on top of the Rockies. Is it a plane?
See page 10.

(Photo by Chandelle Sky Sails)

FAA AVIATION NEWS

DEPARTMENT OF TRANSPORTATION/FEDERAL AVIATION ADMINISTRATION VOL. 13, NO. 3

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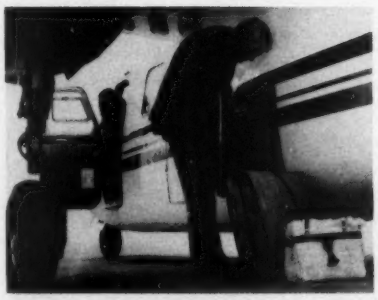

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James F. Rudolph, *Acting Assoc. Administrator For Safety*
R. P. Skully, *Acting Director, Flight Standards Service*

David Gelfan, *Editor*
Gernot Rasmussen, *Art Director* Ruth Taksel Benedict, *Assistant Editor*
Louise Oertly, *Editorial Assistant*

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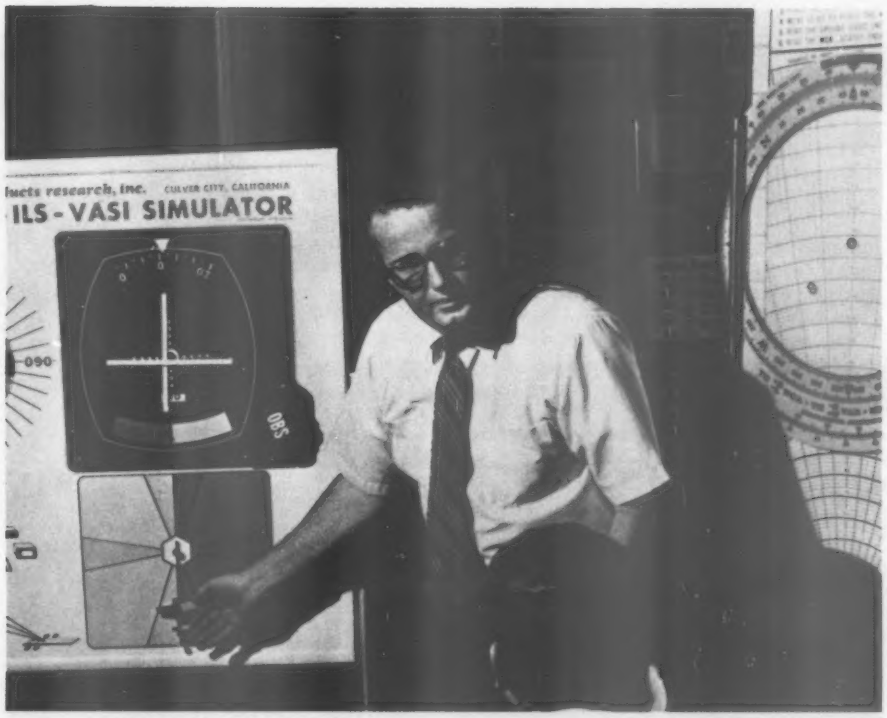

The New Look at Pilot Schools

Revised Part 141 goes into effect on November 1.

FAA has adopted new certification and operating standards for the nation's 2,500 approved pilot training schools, increasing their responsibility for pilot training and testing, and assisting pilot applicants to achieve certificates with a minimal expenditure of time. The revised rules covering pilot schools (Part 141 of the Federal Aviation Regulations) will align pilot instruction with sweeping changes to the pilot certification rules (Part 61 of the FARs) adopted last year.

Revised Part 141, which goes into effect on November 1, 1974, will permit certificated schools having examining authority to recommend their graduates for most pilot certificates and ratings without requiring FAA flight or written tests. The capability of newly certificated pilots to operate safely in today's complex aviation environment will be assured by the higher standards of instruction which will be required. In practice, this means that graduates of approved schools (certificated under new Part 141) will be able to meet the flight time requirements of Part 61 with less than the prescribed minimum hours, assuming that they meet all other requirements for the desired ticket.

The 2,500 currently certificated pilot schools may continue training pilots enrolled under their old approved school certificate until the latter expires. A pilot school certificate issued before November 1, 1974, may be renewed prior to its expiration date for a period long enough to graduate students who were enrolled in specific courses before November 1, 1974. However, this type of certificate renewal will not be extended beyond November 1, 1976.

All pilot schools are encouraged to apply for certification under revised Part 141 as soon as possible, not only to upgrade students but also to prevent an interruption of student training. It will be permissible, during the transition period, for a school to hold a certificate under the old Part 141 as well as under the revised rule.

To be eligible for a certificate under the new rule, a pilot school must meet all the pertinent requirements of Subpart A through C of Part 141 (revised). These requirements include adhering to a standard curricula and course outline, keeping training records, use of simulator/ground trainers, continuous use of airport facilities, and the avoidance of advertising practices that may mislead applicants with regard to school certification.

In addition, the school must have trained at least 10 applicants for pilot certificates or ratings within the past 24 months. Also, at least 8 out of the 10 most recent applicants tested by an FAA inspector or designated pilot examiner must have passed their practical tests on the first attempt.

Schools that meet all requirements of revised Part 141 except those involving recent training may be issued a provisional pilot school certificate. The provisional certificate may also be issued to schools certificated under old Part 141 which do not meet the 10 applicant requirement.

The holder of a provisional pilot school certificate who does not meet the recent training experience requirement before the certificate expires (two years) will not be issued a new certificate within six months of the expiration date.

If an approved school has trained at least 10 applicants, but its record shows that fewer than 8 of the 10 most recent graduates passed their flight test on the first attempt, the school may be denied re-issuance of its certificate until it shows that action has been taken to ensure an improvement in the quality of training.

Persons interested in pilot training at an approved school should contact their nearest FAA Flight Standards District Office for a listing of local schools. Managers of pilot schools who desire complete information on the new regulation should obtain the June 6, 1974, issue of the Federal Register. An FAA Advisory Circular, "Part 141 (revised): Pilot Schools" is under preparation.

DATES TO REMEMBER

November 1, 1973 to November 1, 1974	Between these dates applicants for pilot certificates or ratings may meet either requirements of the old Part 61 or Part 61 revised.
November 1, 1974	Part 141 (revised) goes into effect. All pilot schools certificated after this date must be eligible in accordance with the new rules.
November 1, 1974	Biennial flight review must have been completed by all persons before they may act as pilot-in-command.
November 1, 1975	Flight instructors must have old ratings exchanged for new certificates and ratings before this date.

Inflight Infusion

The unpressurized cabin can be a booby-trap for sealed liquids

A cup of coffee or tea can be a pleasant stimulant for the busy pilot, especially when on a long flght without stops for refreshment en route. But a coffee shower is something else—a frightening, sometimes painful experience that could endanger your life, as a vacationing pilot discovered recently while flying over the Rocky Mountains.

The pilot and his wife had taken off early in the morning in their Cessna Turbo 210 from Long Beach, California, on their way to an air show at Rifle, Col. It was to be a long day of flying which would take them across Nevada and Utah, and up over the western slopes of the Colorado Rockies. They had prepared a thermos of hot coffee to carry with them in the cockpit, to avoid losing time on the way. The aircraft was not pressurized, and the weather forecast called for intermittent IFR weather, but this posed no particular problem. The pilot, a business executive, was instrument rated and he had logged over 1,000 IFR hours in 15 years of flying.

They were crossing over southern Nevada into Utah, flying at 11,000 feet, when they decided to have a cup of coffee. When the pilot's wife started to twist off the plastic top of the thermos flask—*swoosh!* A geyser of steaming hot liquid sprayed out all over the cockpit.

Control of the airplane itself became an immediate problem. The spray of hot coffee had not only drenched the control panel, but it had also atomized all over the windshield, fogging them into instant IFR conditions. For the next few minutes they were flying solely on instruments, for which, fortunately, the pilot was well qualified.

The vapor dissipated soon, but nevertheless it was necessary to make a landing. The steaming coffee had scalded his wife's hands and arms, and she was in pain. The pilot, who suffered only slight burns on his hands, studied his charts and decided to put down at Cedar City, Utah. He had no difficulty landing the airplane.

His wife's burns (second degree) were given first aid treatment by the FAA flight service station staff at Cedar City, and after she had taken some aspirin she felt well enough to fly on to Rifle, where she could receive more complete medical treatment. The Cessna seemed to be functioning perfectly well despite the dousing with coffee in the cockpit some minutes earlier, and the pilot discovered no problems when he did a run-up. He filed IFR to Grand Junction just across the Colorado Border which was then reporting 8,000 scattered and 12,000 overcast, and off they went.

They were about 100 miles from Grand Junction when they picked up an IFR clearance, and about that time the third in the series of mishaps caused by the coffee splash began to manifest itself. Apparently the liquid had seeped through crevices on the control panel, and it was now beginning to short out wires and damage the airplane's electrical system. The first thing to go was one of the two radios. The pilot switched to the other radio, but the reception on that one was now weak and intermittent.

Other controls began to go out. He lost the tachometer, the course guidance system in his navigation instruments, and the gyro instruments.

He began sending out a call for assistance on the one functioning radio, trying to raise either the Denver Center or Grand Junction Approach Control, but for the next ten minutes he received no response whatsoever to his calls.

Meanwhile, radar controller Jerry Clemons was sitting at his console at the Denver Center, and he was indeed hearing the call for asistance from the Cessna 210. Clemons a veteran tower specialist and a pilot himself, was answering the calls, but the weakened receiver in the Cessna was just not picking them up. Sitting next to Clemons was Teryl Kelley, the interphone controller, and he began to work with Clemons on the assist, under the direction of Ben Ignatio, the team supervisor.

On the radar screen at Denver, Clemons

could see that he had a twin-engine air taxi flying near the Cessna. He called the air taxi and asked him if he would try to contact the Cessna in his vicinity. *He would.* The air taxi pilot was then asked to convey instructions to the Cessna pilot to switch his radio from 127.8 Mhz to 128.5 Mhz, a frequency serviced by a remoted Center transmitter. The Cessna pilot switched frequencies and was then able to make direct contact with the Center, and be identified on radar.

He was now about 40 nautical miles west of Grand Junction, and he explained the dimensions of his instrument degradation. He was told that landing at Grand Junction would require an instrument approach—the conditions were 600 feet scattered, ceiling 1,200 overcast, and 7 miles visibility in light rain. Nevertheless the pilot elected to try to land at Grand Junction. He wanted to get down at the closest airport before any more of his instruments went out.

Denver Center vectored the Cessna to a point five miles west of the Grand Junction VOR, directed him to descend to an altitude of 10,000 feet and get ready for an ILS approach. The Cessna was next brought down to 8,000 feet, and directed along the localizer course toward the airport. The pilot reported he was now getting ILS course guidance, and when Denver radar established that he was on the final approach course he was given descent instructions according to the airport's ILS descent approach profile.

At that moment the Denver Center lost radar contact. Three miles from touchdown and near the minimum descent altitude, the pilot spotted the runway. A few minutes later he was on the ground.

He had learned two unforgettable lessons about the hazards of liquid splash in the cockpit. The first lesson was the danger of opening a heated liquid in a thermos container at altitude in a non-pressurized cabin. The air in the thermos between the top surface of the liquid and the sealed top is heated by the hot coffee, and it is of course expanding. (It is virtually impossible to fill a thermos so full that there is absolutely no air space above the liquid.) When you break that seal on the thermos the combination of expanding hot air and reduced air pressure can very well cause hot liquid to spray out effusively. The air pressure at 10,000 feet, for example, is only 69% of one unit of air pressure at sea level.

The easiest way, naturally, to avoid an uncontrollable coffee spray in a non-pressurized cabin is to never open a coffee thermos during flight. Some pilots never allow one on board. They contend that there is simply no way of knowing at what altitude you may get that geyser of coffee because too many factors are involved. Turbulence can increase the internal pressure in the flask. Heat and humidity are also factors.

The second lesson the 210 pilot learned was that instrument damage caused by liquid spillage can be delayed in onset, and progressive. The fact that no immediate signs of trouble show up does not mean that no shorting out has occurred. Only a mechanic's bench test of the avionics could tell that for certain.

If it is important for you to carry hot coffee on the aircraft, take some precautions against spillage. Some pilots make it a rule to cover the flask with a towel or handkerchief when opening it. It is also a good practice never to point the flask toward the instrument panel or windshield—or, naturally, toward another person. A scalding blast in the ear is enough to put any pilot out of commission at least temporarily.

Once you have the coffee opened and poured out safely, make sure you don't place cups where they will overturn. Setting one down on the console or instrument panel is asking for trouble. If you are a habitual consumer, it may be worth while to invest in a wall bracket of the type used in commercial aircraft. Commercial and military pilots, incidentally, like to have their coffee passed to them over their left shoulder (when in the left hand seat) so that if any is spilled it will not penetrate the console.

Carbonated drinks also have an explosive potential when opened at altitude in an unpressurized cockpit. The bottle or can should be opened cautiously, like the thermos. Instant IFR is not a condition everyone can respond to effectively.

In point of fact, any airtight vessel containing air and any liquid is liable to lose that liquid explosively when the differential between the outside air pressure and the air pressure inside the container becomes significant. This could happen at 10,000 feet or less depending on atmospheric conditions, and the force could be destructive as well as frightening.

Everyone likes to be refreshed, but when you are flying an airplane you have to keep it under control. As the poet said, "There's many a slip, 'twixt the cup and the lip."

Volatile Vessels

Partially filled containers that could cause trouble aloft if carried in an unpressurized cabin or taken in luggage stowed in the baggage compartments of transport aircraft may contain:

Perfume	Wine
Liquor	Oil
Butane (lighters)	Rubbing alcohol
Liquid soaps	Shaving lotion

Willard C. Marvin

De-Pressing the Panic Button

Top flight instructor also doubles as retriever of lost sheep.

Pilots who fly into the Los Angeles area, with its celebrated smog basin and frequent overcasts, have an extra insurance factor going for them in the form of Willard C. Marvin, a veteran instructor pilot who is frequently called upon by air traffic facilities to lead a lost airplane to safety.

Last month a *Cherokee Six,* out of Phoenix and bound for the Los Angeles suburb of Torrance, radioed for assistance to the Long Beach control tower. The pilot, who was not instrument rated, reported that he was on top of a thick overcast at 11,000 feet, and running low on fuel. He had four passengers on board.

Long Beach Approach Control, knowing that Willard Marvin was instructing on instruments in the area, asked him to contact the *Six*. Willard spoke to the other pilot on the radio, calmed him down, located him visually and quickly led him down through a break in the clouds to the south, near El Toro, and on to a safe landing. Then he resumed his instrument lesson.

Incidents of this kind happen about once a month to Willard, who is known locally for his uncanny ability to build or restore a pilot's confidence in his ability to handle an airplane in any given situation. In fact, he has made a lifetime career out of the premise that the best way to help people learn to fly is to show them how to build upon what they know. The success of his methods can be judged from the fact that he has been voted the outstanding instructor pilot of the year, in a national competition co-sponsored by FAA and the Aircraft Owners and Pilots Association.

As chief pilot for Williams Aviation in Long Beach, Calif., Willard has charge of five instructor pilots, and he has had ample opportunity to observe the effect of the instructor on the student. He believes that if a student fails to make steady progress, it is usually because the instructor has failed to establish the student's confidence in his instructor or in the airplane. Consequently, the student will lack confidence in himself.

He has observed that many students treat the airplane with excessive delicacy, as though it will come apart if the wheel or the rudder is moved sharply. In many instances he has found that the trouble lies in the bad habit of gripping the wheel so tightly that there is no sense of feeling left in the hands—the student literally cannot develop a feel for the responsiveness of the airplane, and he mistakes rigidity for control.

In other cases he has seen students who have heard so much about the dangers of steep banks at low altitudes that when they get in the landing pattern they are fearful of raising a wing more than one or two degrees, so that they are always skidding their turns and unable to execute a proper approach.

His cure is to take the student up to a safe altitude in an undisturbed area, trim the aircraft, and encourage the student to learn through experience just how flyable the machine is—what will happen when you just turn it loose in various attitudes, when it stalls, when it spins, or when you bank too steeply, or "muscle" it around. The place to start to learn landing techniques, he feels, is at altitude, not in a busy pattern near the ground. The student who learns to slow-fly with precision at 7,000 feet normally will have no difficulty with his landing flare. But if he spends all of his air time at cruise speed getting from point A to B, he will naturally lack confidence in his ability to control the airplane once the airspeed drops down near the stall point.

In all his training experience (he has over 24,000 hours logged) Willard has only had one outright failure—a student who simply could not learn to fly. In fact, this student, a middle-aged woman, usually could not even find her way to the airplane, after it was carefully pointed out to her. Sometimes she could not find the airport. He suggested that she find some other hobby.

He has also turned down a number of requests for instruction from "big men in a hurry," doctors or other professionals who asked him just to sit there in the cockpit in case something went wrong. That is not his idea of the instructor's role.

On the other hand, he always cautions instructors against carrying out routine cockpit chores that the student should be taking over progressively. Whenever he finds that a student has not soloed within 12 hours, he takes the next lesson flight himself, to find out to what extent the student has been handling his pilot responsibilities. If he has been "riding around" more than flying, it is obvious why he is not ready for solo.

"Hard cases" or students with little self-confidence are often handed over to Willard, because of his known ability to inspire confidence. Women particularly appreciate his manner of acquainting them with the maneuvers they have trouble with. Because women are usually not as strong as men, he gives them more instruction on trimming the aircraft so that it can be flown with the least expenditure of effort. As far as natural aptitude is concerned, he feels that women can learn to fly as well as men, given the proper start. The early training is crucial, he feels, because the habits laid down in this period are difficult to change. He strongly encourages his students to invest time and money in postflight ground instruction, as the best means of preventing bad habits from setting in.

Willard's attitude toward students stems from his early boyhood experiences, as an orphan child growing up near Fullerton (Calif.) Airport, where the local pilots and mechanics sympathetically let him poke around their airplanes and share in the excitement of flying. He was given his first ride at age eight, and knew at once that "it was for me." From then on he spent all of his spare time at the airport, doing odd jobs in exchange for instruction or flight time, and at age 17 he had his private pilot's ticket. Five years later, after a tour of military duty in Korea, he became a full-time flight instructor, and has been one ever since.

He has also been active in fostering aviation, especially among young people and under-privileged children, and in the FAA's Accident Prevention Program. He can always find time to give a free "courtesy proficiency" ride to an interested pilot, and of course if he is up flying and someone in an airplane gets into trouble he is always ready to render assistance. Air traffic controllers like to call on him because of his wide range of experience in many types of aircraft, and because of his special gift for de-pressing the panic button.

National recognition of his contributions to air safety came to him last month, when he and his wife and three children were flown to Washington, D.C. to receive an award as 1973 Flight Instructor of the Year from FAA's Administrator, Alexander P. Butterfield. Willard also received approximately $4,300 in financial awards from aviation industry supporters of the instructor profession, which now numbers 38,000 persons in the United States. ■

"Now this airplane really wants to fly level, and it will—if you don't fight it too much."

The Federal Aviation Regulations, formally published only in volumes, are in the process of being re-issued as individual Parts. The conversion is scheduled for completion in early 1975. Infrequently amended Parts will be sold as a single-sale item and their "Changes" will be sold separately by GPO, while frequently amended Parts will be sold on subscription. Current subscribers to volumes will be notified of prices and ordering procedure for the new Parts.

Beside each FAR volume number below are listed all transmittals (amendments) for all Parts in that volume, to date. Number in parenthesis after each Part indicates the latest transmittal, if any, to that Part. FAR's may be purchased from any Government Printing Office Bookstore or from the Superintendent of Documents, Washington, D.C. 20402.

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Part 37	Technical Standard Order Authorizations	$5.65 + $1.45
Part 43	Maintenance, Preventive Maintenance, Rebuilding and Alteration	$2.50 + 65¢
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* Changes to individual airspace designations and airways descriptions, individual restricted areas and individual jet route descriptions are not included in the basic Parts 71, 73 and 75, respectively, because of their length and complexity. Such changes are published in the Federal Register and are included on appropriate aeronautical charts.

** Due to the complexity, length, and frequency of issuance, airworthiness directives, enroute IFR altitudes and standard instrument approach procedures are published in the Federal Register and are not included in basic Parts 39, 95, and 97. In addition, enroute IFR altitudes and instrument approach procedures are depicted on aeronautical charts.

Standard instrument approach procedures are published in the Federal Register by reference to FAA documents which are available for examination at the Rules Docket (AGC-24) and the National Flight Data Center, in FAA Headquarters, Washington, D.C. and at FAA Regional offices and Flight Inspection District Offices.

The Preventor

Mechanic's Creed

Upon my honor I swear that I shall hold in sacred trust the rights and privileges conferred upon me as a certified mechanic. Knowing full well that the safety and lives of others are dependent upon my skill and judgment, I shall never knowingly subject others to risks which I would not be willing to assume for myself, or for those dear to me.

Top general aviation mechanic of 1973: Hugh D. Fink of Burbank, Calif.

Why would the owner of a new airplane ask a mechanic to check it over carefully?

Why would the mechanic go over it as meticulously as if it had been booby-trapped?

Because mechanical devices are not infallible, and they cannot talk. You have to converse with them with your eyes and hands, and if these are trained and perceptive you may discover trouble hiding under a glossy surface.

Discoveries of this kind are what make life interesting for Hugh D. Fink, who owns and runs a general aviation sales and service business at Hollywood-Burbank Airport near Los Angeles. His skill in detecting maintenance problems before they become accidents has led to his selection as national winner of FAA's 1974 Mechanic's Aviation Safety Award in the general aviation category.

Repairing aircraft with known or obvious complaints is relatively simple, in his view. The real challenge lies in locating trouble before it surfaces. A prime example of Hugh Fink's perceptiveness in preventive maintenance took place in his shop not long ago when he was asked to check over a single-engine airplane newly acquired by one of his regular customers. The plane was virtually new, not a mark on it, and of course it had been wrung out at the factory before delivery. Still the owner wanted Hugh's opinion.

Hugh would make no comment until he had gone over every inch of the aircraft from nose to tail, and in fact he was standing at the tail section, about to complete his inspection, when something caught his attention. He was examining the stabilizer and elevator control at the point where it attached to the aft fuselage bulkhead, and something did not seem quite right to the touch. When he tugged at the stabilizer he felt a slight—*an ever so slight*—give. He paused, and tugged again, and still he felt that almost imperceptible movement. It was not actually loose, but then neither was it actually snug.

He got out his tools and began to work on it, first removing the tail cone fairing and the close-out panel from the aft fuselage bulkhead so that he could get at the bolts that held the stabilizer to the bracket. He removed all six bolts and examined them carefully. They appeared to be excellently tooled and in fine condition. He returned them to the bracket and tightened them in accordance with the manufacturer's manual, which specified a torque value of 35 to 40 inch/lbs. He hand-tested the stabilizer again. There still seemed to be a suggestion of looseness. In order to overcome this he found it necessary to tighten the nuts on all of the bolts well beyond the recommended torque value.

Something was wrong. Were the figures in error, or was there just something ill-fitting about this particular stabilizer on this particular aircraft? The answer to this question was extremely important, because a loose stabilizer can start vibrating in flight and break away, leaving the aircraft out of control.

There were several other airplanes of this model at the airport, so he got permission from the owners to check them out. In every case the result was the same: the bolts torqued to the manufacturer's recommendations did not hold the stabilizer firmly in place.

Hugh did not lose any time speculating on the cause. He immediately telephoned the manufacturer and advised him of his findings, and he submitted a Malfunction/Defect Report to the local FAA District Office.

And he got quick results. The manufacturer issued a Service Bulletin to all owners of the model of airplane, warning about the possibility of loose bolts in the stabilizer bracket. FAA issued an Airworthiness Directive (AD72-14-7) requiring an early examination by a mechanic of the stabilizer bracket to test for loose bolts or cracks or other damage.

Subsequent investigation revealed the cause of the loose bolt problem. The manufacturer had been supplied a quantity of nuts which were not precisely sized according to specifications for that particular fixture on the airplane. The nuts were microscopically undersized, and thus had to be forced slightly when screwed onto the bolts. The tension of forcing the nut on to the bolt made the torque reading register the 35-40 inch/lb. value before tension on the bracket had reached the desired point. The torque was correct, but the tension, or clamping effect of the bolt was not.

Just how many inflight problems or accidents were avoided by that particular dose of preventive maintenance "medicine," Hugh Fink has no way of estimating. The problem might have been spotted at the next annual inspection, after usage had aggravated it, and then again it might not. For this reason he believes that all pilots and mechanics (he is both) should realize that there is more to aircraft inspection than simply ticking off items on a check-list. From his point of view, there is no such thing as a routine examination. Every time he looks over an airplane he makes a concentrated effort to communicate with it, to become aware of hidden symptoms of trouble.

Hugh Fink learned a lesson about careful and painstaking examinations of airplanes early in his aviation career. He and a team of other mechanics had been working on a DC-6 which was ready to take off on a commercial flight, and he took a last walk around the airplane for a final look. The airplane was fueled, the captain in the cockpit, and the engines were running. Everything seemed fine. At the gate passengers were lining up, and in a few minutes they would board the airplane and depart. The big four-engine DC-6 made a turn at the moment when Hugh was looking at the wheel wells. His sharp eyes caught something that puzzled him. There were tire marks on the main door gear rod. What were tire marks doing there?

The airplane was all ready to go now, but Hugh was disturbed by that inexplicable tire mark, which apparently had excited no attention from the maintenance crew. What had happened? Could it mean that the tire was somehow loose and had struck against the rod, leaving the mark? He signaled the pilot to stop, and ran inside to get the hydraulics expert to help him examine that front strut. The engines were shut down; they pulled the gear out; and then they discovered the problem. The large retainers on the strut pistons had been improperly secured and they were coming loose. It appeared that the whole front strut was about to come off very shortly, which would cause the airplane to lose its front dual wheels.

Hugh thought about all those passengers who had been eagerly waiting to board the airplane, and he pictured the panic that could have occurred if those front wheels had come off during takeoff, with the throttles wide open.

It was an episode he never forgot, and it has guided him in all his years of aircraft maintenance. *Never ignore anything.*

Up From the Farm

Hugh Fink, who is now 52, was born in Centerville, Pa., and lived on a dairy farm until his enlistment in the U.S. Air Corps in 1942. After his basic training, he attended aircraft mechanic school at Keesler Field, Miss., beginning a career in aviation mechanics he was to pursue for the rest of his adult life. He spent the major part of his three and one half years in military service at the Air Transport Command Ferry Division at St. Joseph, Mo., where he eventually became a flight engineer and mechanic instructor.

He holds an Airframe and Powerplant Certificate, an Inspection Authorization, and he is a Designated Mechanic Examiner for Airframe and Power plant. In 1957, he finally obtained his own private pilot's ticket. He felt it would give him a better understanding of the actual mechanics of flying and the problems a pilot might have aloft.

After his military discharge, he worked as a flight line mechanic for Slick Airways in Burbank, and then for Flying Tiger Airlines, and finally as an aircraft flight line inspector for Twentieth Century Airlines in Burbank. In 1959, he began working as a self-employed mechanic, mainly at the Van Nuys Airport where he did routine maintenance, 100 hour inspections, and repairs on all makes of light general aviation aircraft.

In 1966, Fink and two friends founded a new company called Burbank Piper Sales and Service. He was originally Service Manager, but he is now sole owner of the firm, which has prospered over the years. Located at the Hollywood-Burbank Airport, his company now includes an FAA approved training school for all general aviation ratings, the Piper dealership for the area, and a mechanics shop which services general aviation airplanes of all makes and models. He has about 50 to 75 students in his flight school, and he services about 100 airplanes a year on a regular basis.

Despite the prosperity of his business, he refuses to become a front office executive. He still carries the title of Service manager, and he spends long hours in the shop working on airplanes of all kinds. He claims that he either works directly on each airplane in for service, or at least gives it the final inspection. He continues to work with tools because he likes aviation mechanics, and also "... because there's no mechanic I trust more than myself."

Hugh takes a special pride in his ability to "redesign" aircraft components that are faulty. In recent years he has designed and built from scratch improvements for such varied items as improved master panel switches, throttle control rods, and window slide retainers. Other mechanics might simply replace the faulty part as often as needed, but if Hugh can devise a better part he has no hesitancy about letting the manufacturer know. When they adopt his design, he gets a great deal of personal satisfaction out of it—and he saves his customers money.

This type of service has understandably put Hugh Fink in much demand in aviation circles in the Burbank area, especially among motion picture stars who fly. His 25 year old son, James, a Vietnam war veteran, now works in the shop as an apprentice mechanic and plans to follow in his father's footsteps as a career aviation mechanic. Hugh also has an 18 year old married daughter and four foster children.

After winning FAA's 11th Annual Aviation Mechanics Safety Award this year, Hugh Fink was brought to Washington, D.C. to be cited by FAA Administrator Alexander P. Butterfield for his many years of initiative and high professionalism in accident prevention. In addition to the award—a handsomely inscribed medallion—he received a number of monetary and other gifts from manufacturing firms and air safety organizations.

To receive the award, Hugh and his wife were flown to Washington by veteran Hollywood director Henry King, one of the oldest active general aviation pilots in the country, in the latter's *Baron*. It is a long hop for a light twin, but Hugh had no worries at all about the mechanical condition of the airplane.

He services it himself in his own maintenance shop. ■

tion Regional Winners

ock Mountain

avid L. Aukes

Southern

Jack Faith

Pacific

Enos Fernandes

Eastern

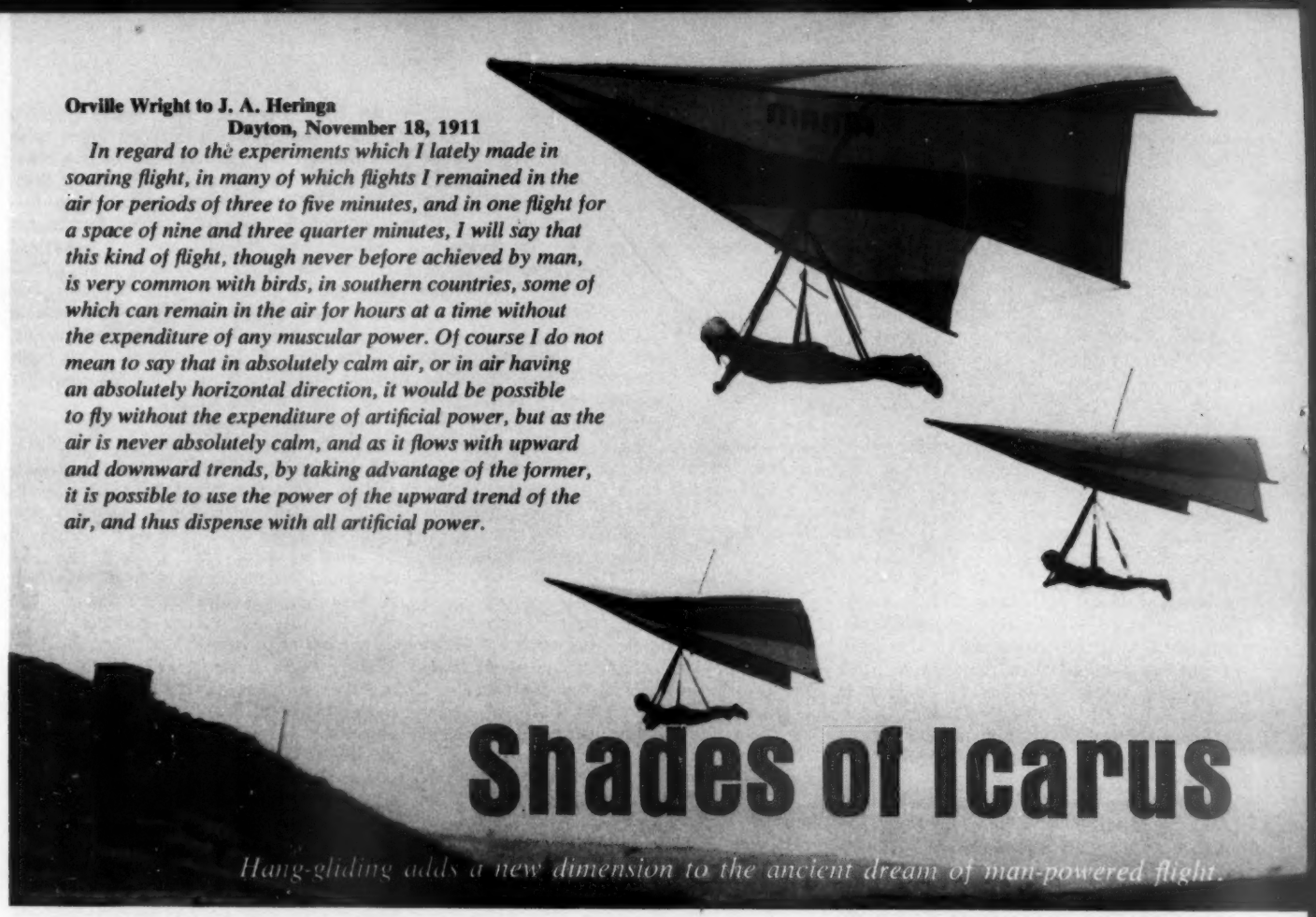
J. M. Bennett

New England

Francis F. Szlatenyi

Great Lakes

Jeffrey M. Kusch



Orville Wright to J. A. Heringa
Dayton, November 18, 1911

In regard to the experiments which I lately made in soaring flight, in many of which flights I remained in the air for periods of three to five minutes, and in one flight for a space of nine and three quarter minutes, I will say that this kind of flight, though never before achieved by man, is very common with birds, in southern countries, some of which can remain in the air for hours at a time without the expenditure of any muscular power. Of course I do not mean to say that in absolutely calm air, or in air having an absolutely horizontal direction, it would be possible to fly without the expenditure of artificial power, but as the air is never absolutely calm, and as it flows with upward and downward trends, by taking advantage of the former, it is possible to use the power of the upward trend of the air, and thus dispense with all artificial power.

Shades of Icarus

Hang-gliding adds a new dimension to the ancient dream of man-powered flight.

Rogallo Wing glider photo by Floyd Clark Caltech

You round a bend in the country road and come upon a scene that is strangely reminiscent of pictures you have seen of man's early attempts to fly: On the flattened top of a gently sloping hill a man wearing only helmet, shorts and sneakers holds a triangular, sail-like wing above his head.

After a few cautious, testing steps the birdman begins to run hard, his paces growing longer and longer. As he approaches the hill's edge the point of the wing is raised slightly for a moment and he is airborne. His flight path parallels the slope of the hill only a few feet above the surface. His hands grip a trapeze-like bar and his feet are thrown back in a prone position as he glides through the air. A mightly shout echoes over the hills, filled with an exuberance rare in modern man—"Yahooooo—!"

Are you dreaming? Is this really a man, in 1974, flying like a bird? Is it a man-carrying plane? Or a plane-carrying man?

The question is relevant to FAA, because the activity just witnessed has been spreading like wildfire across the country. Hang-gliding, or sky-sailing, or sky-surfing, as it is variously known, has tapped the age-old human interest in flight, and reportedly thousands of adventuresome souls, young and old, are reportedly hurling themselves over promontories strapped to a variety of home-made and store-bought airfoils.

To determine the exact nature of the activity, its relationship to certificated flight, its potential dangers and its probable future, FAA recently sent a fact finding team around the country to contact hang-gliding enthusiasts and manufacturers of the equipment. The team's report has formed the basis for official FAA policy with regard to the sport.

A hang-glider was defined as "an unpowered, single-place vehicle, whose launch and landing capability depend entirely on the legs of the occupant, and whose ability to remain in flight is generated by natural air currents only."

The hang-glider is distinguished from the man-carrying kite, which it sometimes resembles, in that the latter is tethered to an object on the ground. It is distinguished from a normal glider, or sailplane, which it also resembles on occasion, in that the latter is launched by means of external power (aircraft, winch or automobile).

Hang-gliders fall into two general categories: rigid and Rogallo Wing. The rigid type consists of a lightweight, fairly conventional wing (sometimes two wings) with or without fuselage, with or without tail, and with one, two, three or no axis controls. The operator may hang by his armpits, sit in a swing seat, or be suspended in a harness. Almost all rigid wing hang-gliders are homebuilt; plans and kits are readily available for them.

The Rogallo Wing is radically different. It consists of delta-shaped fabric fastened to an aluminum frame at the leading edges and along a keel boom, but with the trailing edges free. As the Rogallo takes flight, air pressure forms under the wing, which becomes semi-conical in shape, and spills out the back, forcing the vehicle forward as it descends. The three metal tubes which form the leading wing edges and the keel are usually about equal in length—from 15 to 20 feet, depending on the weight of the pilot—and joined at the nose. A shorter tube or crossbar supports the harness or sling.

There is nothing really new about either type of hang-glider. Early Orville and Wilbur Wright aircraft were in fact hang-gliders, and the Rogallo Wing, which accounts for about 95% of today's hang-gliders, was invented in the 1940's by Dr. Francis M. Rogallo, a NASA engineer who had no immediate purpose in mind for his invention but figured it would come in handy somewhere in our space program. He and his wife patented it in 1948, but except for some children's kites, few models were built before the patent expired. Dr. Rogallo, now retired, lives at Kitty Hawk, N.C. and still enjoys hang-gliding, but reaps no financial benefit from his popular design, which has revolutionized the sport.

The current revival of hang-gliding began three or four years ago in southern California, which remains the center of the activity with some 30 percent of all launches taking place there. Hang-gliding is also popular in other areas now, in northern California, on the slopes of the Rockies in Colorado, on the sand dunes of Cape Cod in Massachusetts, on the mid-Atlantic Coast (with Kitty Hawk a favorite flying field) and also in the mid-west—enthusiasts fly off ancient Indian mounds in western Illinois. Hang-gliding is also popular in Hawaii, where coastal breezes make it possible to stay up nearly indefinitely. The record endurance flight (more than 10 hours) was set recently in Hawaii.

Icarus II, designed, built and flown by 19-year-old Taras Kiceniuk, is made of aluminum tubing, with Dacron covering. Wing tip rudders are controlled by twist grips.
Floyd Clark Caltech photo

Biplane (above) patterned after early Wright glider, was built by Waldo Waterman, who has been flying for more than 50 years.

The participants at meets and launch sites say that hang gliding has an appeal for persons of all ages, although the percentage of young people—college age or less—is far greater than in most aviation oriented activities. The physical challenge is an obvious factor. It does not take a super person to fly a hang-glider, but physical endurance helps; not just for flying, but also for carrying the gear back up the hill after each flight. A certain amount of agility is needed for takeoffs and landings. A white-haired spectator observed, "It looks like fun, but I'm afraid my landing gear is too brittle."

Another youth-appeal factor is that hang-gliding is a relatively inexpensive form of flying. A Rogallo can be bought for less than $500 or built for less than $300. It is mobile (most equipment can be carried in, on or behind a car); it can be learned with less formality than powered flight; it is sophisticated enough to present a challenge, yet simple enough not to be frustrating. Last but not least, hang-gliding seems to offer a sense of freedom rarely experienced by human beings. Participants invariably describe it as "the closest thing to really flying—like a bird."

Certainly in a hang-glider you are more physically a part of the action than with other types of flying. In Rogallos (also in rigid hang-gliders without controls) you move your body to control the attitude of the craft, sometimes aided by a trapeze-like bar in front of you to give you leverage. You lean sideways to turn, push your body back to raise the nose to climb, or pull your body forward to lower the nose. As with powered flight, too much positive rotation produces a stall (stall speed is about 15 mph).

The landing is like a full stall landing in a powered aircraft—you come in with enough speed for good control until just above the ground, then flare till the craft stops flying. You drop to the ground at (hopefully) no more than a walking speed.

(Continued on page 12)

Icarus V monoplane (below). Beaches with high dunes offer inviting launch sites for hang-gliders, but FAA cautions that they should not be flown over sunbathers or swimmers.

Shades of Icarus (continued)

Successful flights may last a few seconds, a few minutes, or a few hours.

No one knows exactly how many hours, or seconds, are being flown in hang-gliders, or how many hang-gliders are in use, or how many people are flying regularly—to say nothing of those who have tried it a time or two—because there are no requirements for keeping such records. Thousands of sets of instructions and homebuilder kits have been purchased in the last few years, and 50 to 75 commercial companies are making and selling Rogallo hang-gliders (most rigid types are homebuilt). The United States Hang Gliding Association (USHGA, organized in 1971 as the Southern California Hang Gliding Association with 25 members) now has more than 8,000 members nationally and is adding 300 to 400 per month. While not all of these people fly on a regular basis, many hang-gliding pilots are not members of any organization. Lloyd Licher, President of USHGA, estimates that there are probably between 8,000 and 10,000 hang-gliders in the U.S. and somewhere between 5,000 and 15,000 pilots, and that the industry expects to manufacture about 5,000 Rogallos in 1974. Dan Poynter, author of the popular manual on hang-gliding, says that one manufacturer alone claims to have already trained about 15,000 persons in the sport.

What about accidents? The great majority are ski-type, downhill accidents—broken wrists, bruises, and damaged egos. However, this year at least nine crashes have been fatal to the operators of Rogallos. Since no federal agency investigates such mishaps, no official determinations of the causes are available. However, unofficial data indicates that in nearly every case the pilot was violating a cardinal safety rule of novice hang-gliding: *never fly any higher than you would care to fall.* One of the victims was electrocuted when he flew into high tension wires. All of the others lost control in unfavorable winds and/or turbulence, which must be considered the number one enemy of hang-gliding.

Lloyd Licher believes most accidents happen because pilots attempt flight beyond their ability, and he feels that lack of knowledge of aerodynamics, including stalls, wind effects, weight and balance, also contributes to the accident toll, since self-taught hang-glider flyers seem to have more accidents than those with some professional training. Dan Poynter suggests that for safety's sake build-your-own enthusiasts should acquire all equipment locally, if possible, to assure compatibility of parts.

A typical accident occurred earlier this year outside Denver when an eager young hang-glider pilot, with a number of successful flights under his belt waited impatiently on Lookout Mountain for gusty winds to subside. An official from the training department of a local manufacturer, who knew the boy had experienced trouble in that same location a few days before, urged him to go to nearby Green Mountain, where he could take off into a good, steady wind. But the impatient young man took off during an apparent lull in gusts around Lookout, only to lose control and crash to the rocks below, fatally injured.

Volmer Jensen, shown in his fully controllable "Swing Wing," has been experimenting with hang gliders since the Twenties. During World War II, when powered flight was prohibited along the coast, he logged many hours in his 1940 bi-plane glider with triple-axis controls.

The fact is, very little is known as yet about wind behavior on airfoils in slow-flight at very low altitude, between 20 and 100 feet above the ground. Almost no scientific data is available. Wind patterns around hills, where hang-gliding is usually done, are notoriously unpredictable. USHGA experts recommend that pilots *never* attempt to fly hang-gliders in winds over 20 mph, and only experts should go aloft when the wind velocity is over 15 mph.

They also recommend that a pilot never attempt a 360 degree turn until he is thoroughly experienced, and then only if he has at least 500 feet of altitude. The full-circle turn is now considered a very advanced maneuver, and the novice may lose 300 feet as he does it. Part of the circle must be flown downwind and calls for expert maneuvering.

The FAA fact finding team concluded that hang-gliding, when practiced with modest caution in flying habits and choice of sites, need not be a hazard to the operator, to other users of the airspace, or to the general public. The sport in its present form allows little opportunity for flight into controlled airspace, and constitutes little threat to people or property on the ground. No accidents or incidents of this nature have been reported. The team further concluded that the hang-glider community, including manufacturers, pilots and organizations, is making a sincere and safety-oriented effort at self regulation, and has already begun formulating manufacturing standards and safety rules for training and flying.

After evaluating the team's final report FAA has decided that no rule-making action will be taken at present, but for the time being FAA will observe the progress of the activity and the efforts of the industry to keep it safe.

Meanwhile FAA will assist in every way possible. The agency has just published an Advisory Circular with guidelines for manufacturers, operators and organizations. To assure compatible use of the airspace and to minimize conflicts with other air traffic, it is recommended that hang-gliding take place:

- Less than 500 feet above the general terrain.
- Outside controlled airspace or at least five miles distant from an uncontrolled airport.
- Away from prohibited or restricted areas without prior permission from the appropriate agency.
- Away from buildings, populated places, or groups of people. (This includes swimming beaches, arenas, etc.)
- Only when the flight will be clear of clouds at all times.

(Operations which appears to be in conflict with any of the above safety parameters should be discussed with the nearest FAA Flight Standards District Office).

Additional recommendations are directed to manufacturers and hang glider associations:

- Develop criteria for materials and con-

struction techniques.

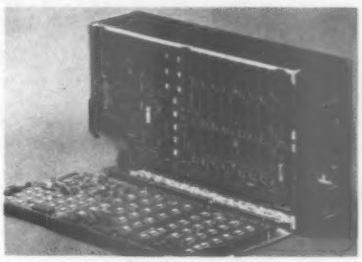
- Ensure quality control during manufacture.
- Work up good training programs during which students are taught early to recognize and observe their own limitations and those of the hang-glider.
- Provide comprehensive instructions in "do-it-yourself" kits to assure that proper hardware and construction techniques are used.
- Work with local municipalities and property owners for setting up flying sites.
- Establish strong safety programs and distribute safety-related materials.
- Develop close coordination with FAA.
- Encourage operators to wear protective clothing, including a helmet and strong shoes. Knee pads are advised for first flights other than over sand beaches.

For free copies of Advisory Circular AC 60-10, "Recommended Safety Parameters for Operation of Hang Gliders," write DOT/FAA Distribution Unit, TAD 484.3, Washington, D.C. 20590, or contact your nearest FAA field office.

Organizations and manufacturers like Chandelle, maker of the craft below, have established training programs and safety rules. Novices are encouraged to stick to gentle slopes and breezes, wear protective clothing including helmets, and to "go slow, stay low."

Pilot BRIEFS

■ HOT CIRCUITS AND BLACK BOXES. Avionics mechanics are cautioned against removing or replacing electronic components in an airplane when power is on. With increased use of solid-state equipment the chances of ruining units by pulling or reconnecting to a "hot" system is greater than ever, since transistorized components are extremely sensitive to voltage collapse, partial circuit energizing and a variety of other problems. A badly handled transistorized circuit can be devastated without any apparent change until you try to make it work on the airplane. Take no chances. Shut the power off first.



■ BONEHEAD OF THE MONTH AWARD goes to a pilot whose private ticket was suspended after he landed and parked his airplane at a controlled airport without contacting the tower. The reason he did not talk to the tower was that his radio was not working, and the reason he felt compelled to land was that he was flying into less than VFR weather, which was steadily getting worse (as forecast). He had a few other problems too—the oil pressure gauge, fuel gauge and panel lights were inoperative. Coincidentally, he did not have with him either a current airman or medical certificate. FAA charged his actions were "careless and reckless."

■ OCCUPATIONAL HEALTH HAZARDS in airport operations is the subject of a survey by HEW's National Institute for Occupational Safety and Health. The survey defines potential industrial hygiene hazards associated with airport operation. Single copies of "An Occupational Health Survey of Selected Airports" are available free from Office of Technical Publications, NIOSH, Room 530, Post Office Building, Cincinnati, Ohio 45202.

■ A VISUAL DEPARTURE PATH INDICATOR is under evaluation on Runway 35 at Lakefront Airport in New Orleans where haze over huge Lake Pontchartrain frequently results in spatial disorientation during climbout. The device, designed for safer night VFR departures by general aviation aircraft, uses two high-intensity light beams aimed from the runway over the lake at an angle approximating small aircraft departure paths and is usable up to about 800 feet. No glare problems were experienced by aircraft approaching Runway 17 since they remained well below the beam. Pilot reaction was initially favorable; further response will be solicited by questionnaire.

■ OLD DEVIL DUST was chief culprit in the mishap of a brand-new Grumman Ag-Cat recently. Dust generated during the taxi run and turnaround drifted onto the runway obscuring visibility. When the pilot took off without waiting for the dust to settle, he wandered off course. A wing struck a tree, as the plane cartwheeled into a citrus grove, causing $30,000 damage to the craft and the loss of five mature citrus trees. Thanks to good cockpit design, use of shoulder harness and hard hat the veteran pilot escaped uninjured. More tragic was a previous accident on a dusty ag-plane strip. Three fatalities resulted when two planes collided and burned on the ground in dust created by a third aircraft which was taking off.

"Operation Ground Assist" Seeks To Cut Accident Toll

"Operation Ground Assist," a month-long campaign to minimize the usual summertime rise in the number of general aviation accidents, was launched on June 15 by FAA Administrator Alexander P. Butterfield. The Administrator directed Flight Standards field office inspectors and accident prevention specialists to visit as many general aviation landing facilities as possible during peak pleasure flying hours (mostly week ends and holidays) and to stress the importance of safe flying habits.

The inspectors were asked to help airport and aircraft operators identify conditions and practices that could lead to accidents. Assistance was offered in all aspects of preflight planning, from aircraft inspection to weather briefing. At the same time, airmen had an opportunity to offer individual suggestions as to how FAA's field operatives could better serve the aviation community. The program was concerned not only with aircraft and pilots but also airport and ground support equipment and personnel, flight schools, maintenance facilities, etc.

Reports from field observors will be studied in Washington headquarters to consider the most effective approach to the problem of decreasing accidents in general aviation. (While personal and pleasure flying accounts for less than one-third of the hours flown annually, it is responsible for about two-thirds of the fatalites incurred.)

Participating in "Ground Assist" in addition to FAA personnel were voluntary accident prevention counselors, flight instructors, "Ninety-Nines," the Civil Air Patrol various state aviation departments and others. Success of the program may be assessed by comparing the 30 day accident toll with that of previous years.

FAA Proposes Xray Equipment Rule

A regulation to govern the installation and operation of X ray devices for screening carry-on luggage at airports has been proposed by FAA. The proposal would assure that all such X ray units comply with Food and Drug Administration standards; that signs be posted advising when X ray is being used and that operators of X ray devices be trained and protected.

Since the spring of 1973 when airlines began using X ray to meet FAA requirements that they search all carry-on items, the devices have proved extremely effective in detecting weapons or explosives that might otherwise have been undiscovered. Weapons have been found hidden in a hollowed-out book, inside a gob of soap powder, inside a heavy ski glove, and in a teddy-bear. The X ray equipment is used only for inspecting carry-on items; it is *not* used to search or screen passengers.

Comments on the proposal, #74-22, should be submitted in duplicate to FAA, AGC-24, Washington, D.C., 20591, before August 20, 1974.

Transponder Deadlines Postponed

Because of an equipment supply problem, FAA has granted a six-month postponement of the deadline for required use of 4096-code transponder with altitude encoder for aircraft operating in terminal control areas. New deadline dates for such equipment are January 1, 1975 in the nine Group I TCA's and July 1, 1975, in the twelve Group II TCA's and 42 Group III TCA's.

The date for required use of the equipment in controlled airspace above 12,500 feet MSL remains July 1, 1975.

The FAA action was based on an April 17 proposal which brought up the problem of equipment availability. More than 100 comments were received from the public, nearly all of them supporting the deadline postponement.

ADAP Allotments Pass $1 Billion

More than $1 billion has been allocated by FAA under its Airport Development Aid Program (ADAP) since the program was established by the Airport and Airways Act of 1970. To date funds have been approved for 1,955 projects, of which 600 were at airports serving general aviation aircraft only and 1,355 were at airports serving all aircrafts.

Santa Ana Has Most GA Operations

The FAA 1973 air traffic activity report shows that operations have increased six percent at FAA airport control towers, air route traffic control centers and flight service stations over 1972. At the 386 FAA control towers there were 56,533,953 takeoffs and landings last year.

Santa Ana logged the most general aviation operations with more than 606,000 (plus some 26,000 air carrier movements). Chicago's O'Hare remained the nation's busiest airport, with 695,303 operations—an average of more than 1,900 per day—followed by Santa Ana, Van Nuys, Long Beach, and Atlanta, Busiest flight service stations were Los Angeles, Chicago, Miami, Washington National, Detroit City, San Juan, Boston. Total flight services by the more than 350 FSSs was 57,219,450. Cleveland was the busiest Center.

Copies of "FAA Air Traffic Activity—Peak Day and Terminal Area Relationships—Calendar Year 1973," may be purchased from Superintendent of Documents, GPO, Washington, D.C. 20402. Price, $4.55.

MLS Meeting Report Available

A comprehensive report of the proceedings of the International Microwave Landing System Symposium held last fall in Washington, D.C., has been published by FAA.

MLS will provide pilots of properly equipped aircraft with a broad area of landing approach paths, unlike the present instrument landing system (ILS) which provides only a single path. More efficient operations thus could be established, increasing airport acceptance rates and reducing noise over surrounding communities.

Copies of "International Microwave Landing System (MLS) Symposium," AD 779312, are available from the National Technical Information Service, Sprinfield, Va. 22151. The price is $9,25 for printed copies, and $1.45 for microfiche.

STOLEN OR MISSING AIRCRAFT

American A2A	N9798M	Poughkeepsie
Beech 65A	N297GB	Dallas
Cessna 411	N411RJ	Miami
Cessna 310	N3092D	Oak
Cessna 310	N5844M	Millville, N.J.
Cessna 210	N3708Y	Albuquerque
Cessna 210	N3884Y	Ontario, Cal.
Cessna 175	N59183	Los Angeles
Cessna 210	N20790	Kansas City
Cessna 182	N9492B	Birmingham
Cessna 172	N3011U	Albany, N.Y.
Cessna 140	N76547	Salinas, Cal.
Mooney M21	N6424Q	Vero Beach
Piper AP-18	N7563P	Pine Bluff, Ark.
Piper PA-23	N5914P	Paso Robles, Cal.
Piper PA-28	N6542J	Ontario, Cal.
Piper PA-32	N8919N	Yuma

If you see any of these aircraft advise the nearest FAA flight service station.

• Who Has the Harness?

It seems each issue of your magazine is better than the last! In May the article, "Crashworthiness Is Next to Airworthiness" was particularly interesting to me. The caption states that the seat belt/shoulder harness illustrated is used in "military airplanes." Can you tell me what aircraft, or branch of service uses this type of restraint? I have never seen one, although I have flown a variety of USAF aircraft, currently fly the T-37.

Robert Lee Clark, Capt. USAF
Lubbock, Tex.

The seat belt/shoulder harness illustrated (distinguished by its five point attachment) is used in the Air Force F-111.

• Adding a Harness

We read with interest your article on crashworthiness. Can you tell me who, if anyone, has a supplemental type certificate (STC) shoulder harness for a Cessna 182 *Skylane?*

Leonard Kaye
East St. Louis, Ill.

The answer would depend on the year and the model of the aircraft. You can quickly get this data from the maintenance inspectors at the nearest FAA district office (in your case St. Louis FSDO at Lambert Airport) where you will find the complete information on all STC's that are applicable to your particular aircraft.

• Where are the Pioneers?

My favorite section of your magazine—"Aviation Pioneers" is missing from your May 1974 issue. I hope you haven't run out of subjects and that it was a one time omission.

Martin D. Kahn
North Miami, Fla.

The historical series (Famous Flights/Flyers) is occasionally interrupted when the space is needed for more urgent information. We plan to continue it.

• The High Cost of Knowledge

I have been a subscriber to *FAA AVIATION NEWS* since I was a student pilot. The information has always been timely, interesting and educational. But the rise in price to $4.90 a year, as announced in the January issue, will cause many pilots, myself included, to allow the subscription to lapse.

It seems to me that instead of raising the subscription price, to keep up with inflationary trends all around us, you could hold the line by effecting certain economies in the magazine, such as using a lower grade of paper, eliminating photographs and historical articles, and reducing the frequency of publication and perhaps the size of your staff as well.

League of Impoverished
Pilots

We already use the least expensive paper available that will insure lasting readability (many persons file their copies for reference or pass them along to others), and we would not save more than a penny per copy per issue with uncoated paper, for example, Eliminating photos would scarcely be a saving, since the cost of procuring copy and setting type for the space that would replace the art could more than offset photo costs. The historical articles actually cost less to produce in terms of time and materials, than the other articles. The salaries of the staff (four persons) do not affect the subscription price; this is absorbed by the agency, as part of Flight Standards safety program: the $4.90 per year is the Government Printing Offices estimate of the money needed to recover the expense of processing subscriptions, printing and mailing.

No one wants to add the straw that breaks the camel's back, but obviously 45 cents a month is a small fraction of the costs of operating an airplane and a pretty good form of low cost insurance.

The only significant means of reducing the subscription price without downgrading the safety effectiveness of the magazine that we are aware of is to reduce frequency of publication, to a bi-monthly or quarterly schedule. We'd like to have reader comments on this.

• Squawk an Altitude?

If a transponder-equipped aircraft loses two-way radio capability, the recommended procedure is to dial in 7600 on the transponder. This tells the controller of our predicament, location, track and ground speed. For those of us who do not have altitude-reporting equipment, I suggest the following as a way to advise the controller of the altitude when the radio is out: After dialing in code 7600, allow two minutes for the controller to establish the radio failure, then set the last two figures at the nearest thousand feet. Thus when maintaining or passing through 12,000 feet the transponder would be set to squawk 7612, etc. The pilot could squawk ident after setting a new altitude. Would this work?

J. Walter Knapp, M.D.
Rochester, N. Y.

Your suggestion is an interesting one and has been carefully reviewed. It is not feasible, however, under our present system. For one thing, radar equipment now in use at many centers will not automatically display to the controller the code on which a given aircraft transponder is squawking. What it does display is certain information about aircraft that have transponders tuned in to a given code or codes.

Also, our radar beacon system is based on the "octal" arithmetic system ,in which only the digits 0 through 7 are used. Consequently any altitudes that contain the number 8 or 9 could not be processed.

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.

• Updating Operating Costs

In the FAA Aviation News of June 1969 you published an operating cost estimate of general aviation aircraft by type class at various utilization rates, along with the hourly operating cost. Due to the recent inflation this has changed so much I was wondering if it is possible for you to publish a more recent estimate.

B. Don Johnson
Carnegie, Okla.

Recent figures are not available. You might check with your nearest fixed base operator who handles the type of aircraft you are interested in.

• Is this Zero Necessary?

In the picture titled "Shape of the Oval" on page 14 of your May 1974 issue the runway designation marking is "02," but FAA's Advisory Circular on airport marking recommends that a zero not be placed before a single digit. Is NAFEC subject to AC's, or was the marking in before the AC became effective?

Peter Melia
Burke, Va.

Although this evaluation is being done at FAA's National Aviation Facilities Experimental Center (NAFEC), the runway pictured is at a nearby airport (Smithville, N.J.). The runway number was painted many years ago. FAA standards for airports (such as those in the AC you reference) are required at airports which are federally funded, optional at others.

• Logging Time

Can you clarify the matter of an individual logging pilot-in-command time with an instructor aboard the aircraft in the process of giving dual instruction?

Daniel Gates
Pillings, N. Y.

Even though an instructor is on board for the purpose of giving dual instruction, a certificated pilot (private or better) may log as pilot-in-command any time during which he is "the sole manipulator of the controls of an aircraft for which he is rated." A flight instructor may log as pilot-in-command time all flight time during which he is serving as flight instructor. In practice this results in some time being logged as pilot-in-command by both people.

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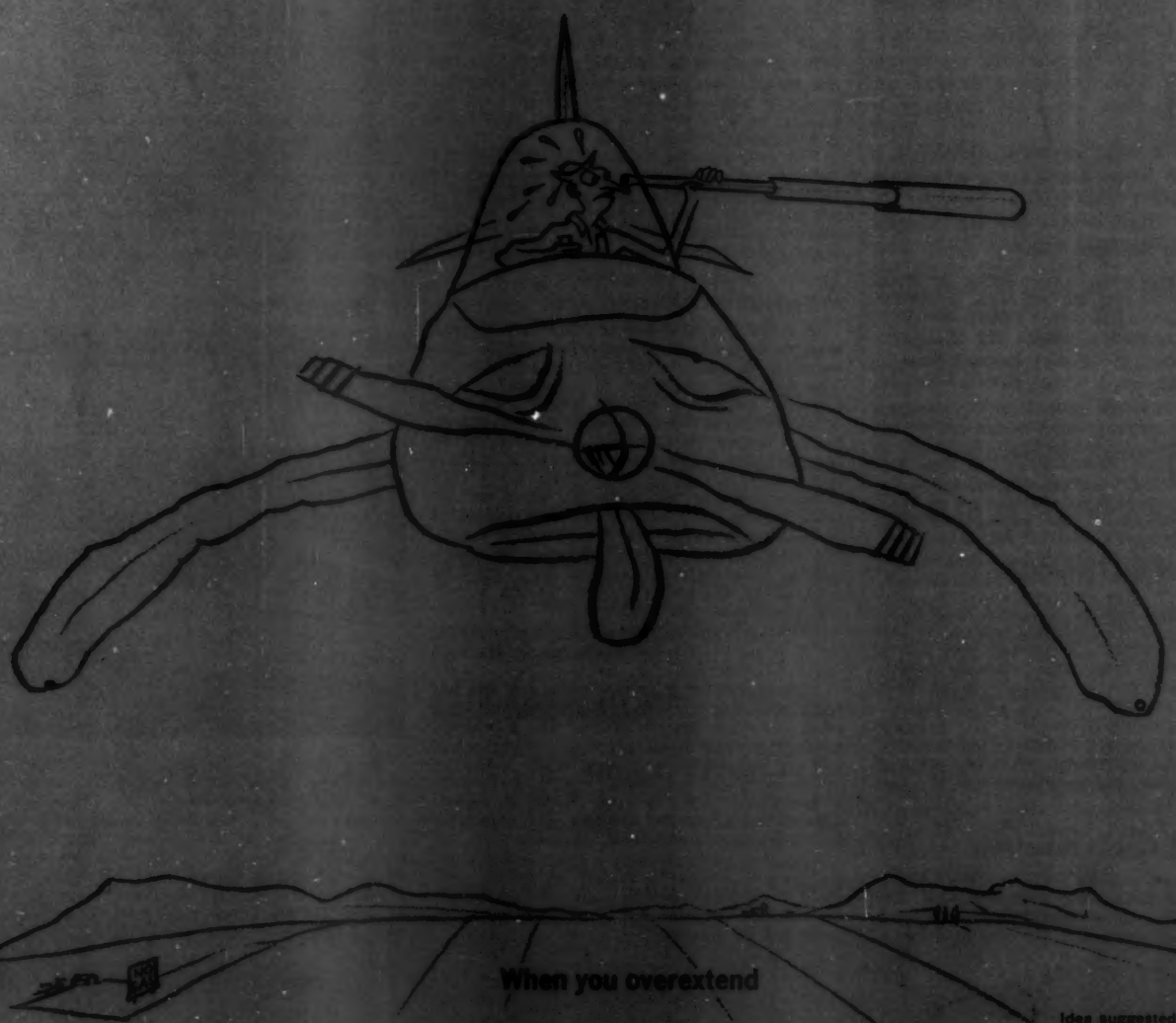

When you overextend

Idea suggested by Thomas Campbell
Airway Facilities Sector Hatsville, Utah